

# EXHIBIT 4



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

272445

# Memorandum

DEPT. OF TRANSPORTATION  
DOCKETS

2003-14623-13

Subject: Docket Letter and Report, "Enhancing Vehicle-to-Vehicle  
Crash Compatibility, Commitment for Continued Progress by  
Leading Automakers"

Date: **MAR 4 2004**

From: Roger A. Saul *Rog A Saul*  
Director, Office of Crashworthiness Standards

Reply to  
Attn. of:

To: NHTSA Docket No. 2003-14623-13

THRU: Jacqueline Glassman  
Chief Counsel

The Alliance of Automobile Manufacturers and the Association of International Automobile Manufacturers submitted a joint-letter to Dr. Jeffrey Runge, Administrator of the National Highway Traffic Safety Administration, dated December 2, 2003, discussing their plans and commitments to begin implementing more fleet-compatible vehicle designs. Attached to this memorandum is a copy of that letter, and their accompanying report. The report is titled "Enhancing Vehicle-to-Vehicle Crash Compatibility, Commitment for Continued Progress by Leading Automakers."

Please submit this memorandum and attached correspondence to NHTSA Docket No. 2003-14623.

Attachment

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DEPT. OF TRANSPORTATION  
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December 2, 2003

The Honorable Jeffrey W. Runge, M.D.  
Administrator  
National Highway Traffic Safety  
Administration  
400 Seventh Street, S.W.  
Suite 5220  
Washington, DC 20590

Dear Dr. Runge:

On behalf of BMW Group, DaimlerChrysler Corporation, Ford Motor Company, General Motors, American Honda, Hyundai Motor America, Isuzu Motors America, Kia Motors America, Mazda, Mitsubishi Motor, Nissan, Subaru, Suzuki, Toyota, and Volkswagen, we are pleased to present the attached commitment of our member companies to begin designing vehicles according to the performance criteria contained in the report, "ENHANCING VEHICLE—TO—VEHICLE CRASH COMPATIBILITY: A Set of Commitments for Progress by Automobile Manufacturers." The vehicle manufacturers making this commitment represent almost all light vehicle sales in the United States.

This commitment defines performance criteria for enhancing crash compatibility, the date by which participating manufacturers are committing to implement these criteria for all vehicles subject to the commitment, and a research agenda for developing data and other information needed to develop recommendations for further enhancing crash compatibility. This commitment also includes a schedule for identifying publicly, on an annual basis, which vehicles have been designed according to these performance criteria for each model year. Of course, in the highly competitive auto industry, individual participating manufacturers will make their own decisions as to particular design approaches used to implement these performance criteria in their vehicles. The dates contained in this commitment are the latest dates by which this process is to be completed, but you can expect to see light-duty passenger vehicles designed according to these performance criteria sooner than those dates.

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The Honorable Jeffrey W. Runge, M.D.  
December 2, 2003  
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This commitment includes provisions for identifying to consumers those vehicles that have been engineered in accordance with these performance criteria. The initial public disclosure by participating vehicle manufacturers will occur on December 4, 2003. Concurrent with this disclosure, these manufacturers will voluntarily provide to the agency information confirming that the vehicles identified have been designed in accordance with the performance criteria.

These efforts to develop voluntary standards for crash compatibility, combined with an industry commitment to begin to design new vehicles in accordance with them, represent a model for responsible industry action to bring significant safety improvements into the fleet faster than typically achieved through regulation.

Sincerely,

Josephine L. Cooper

**Josephine S. Cooper**  
President and CEO  
Alliance of Automobile Manufacturers

Timothy MacCarthy

**Timothy C. MacCarthy**  
President and CEO  
Association of International Automobile  
Manufacturers

**Enclosure**

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## ENHANCING VEHICLE-TO-VEHICLE CRASH COMPATIBILITY COMMITMENT FOR CONTINUED PROGRESS BY LEADING AUTOMAKERS

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### INTRODUCTION

Motor vehicle safety is a shared responsibility of manufacturers, consumers, and governments. Individual vehicle manufacturers have made changes in their vehicles over the years to enhance crash compatibility. Yet individual efforts are only the beginning. Even greater safety benefits can be achieved if industry works together. Moreover, improving compatibility is an ongoing effort. As the research in this commitment progresses, there may be a need to reassess or refine aspects of the performance criteria contained herein. Consistent with our dedication to advancing motor vehicle safety and in the spirit of the philosophy of shared responsibility, the vehicle manufacturers listed below make the following voluntary commitment for enhancing vehicle-to-vehicle crash compatibility.

### **1.0 FRONT-TO-SIDE CRASHES**

#### **1.1 PERFORMANCE CRITERIA & IMPLEMENTATION SCHEDULE**

##### ***Phases 1 & 2: Enhancing Self-Protection***

*Participating manufacturers will begin designing their vehicles in accordance with one of the following two head protection alternatives:*

*OPTION 1: HIC<sub>36</sub> performance of 1000 or less for a SID/H3 crash dummy in the driver's seating position in an FMVSS 201 pole impact test<sup>1</sup>, OR*

*OPTION 2: HIC<sub>15</sub> performance of 779 or less (with no direct head contact with the barrier) for a SID-IIs crash dummy in the driver's seating position in the IIHS MDB side impact crash test<sup>2</sup>.*

***Phase 1:*** Not later than September 1, 2007, at least 50 percent of each participating manufacturer's new passenger car and light truck (GVWR up to 8,500 pounds) production intended for sale in the United States will be designed in accordance with either head protection Option 1 or Option 2.

***Phase 2:*** Not later than September 1, 2009, 100 percent of each participating manufacturer's new passenger car and light truck (GVWR up to 8,500 pounds) production intended for sale in the United States will be designed in accordance with the IIHS MDB recommended practice of HIC<sub>15</sub> performance of 779 or less (with no direct head contact with the barrier) for a SID-IIs crash dummy in the driver's seating position.

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<sup>1</sup> Sections S 8.16 through S8.28 of Federal Motor Vehicle Safety Standard No. 201, "Occupant Protection in Interior Impact." (October 2002).

<sup>2</sup> [http://www.highwaysafety.org/presentations/sice\\_files/IIHSSideImpactProtocolStat.pdf](http://www.highwaysafety.org/presentations/sice_files/IIHSSideImpactProtocolStat.pdf) (February 2003, as amended)

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***Applicability:** These performance criteria do not apply to vehicles that a manufacturer determines, due to basic practicability and functionality issues, cannot meet the performance criteria, and would have to be eliminated from the marketplace if compliance were required.*

### **1.2 RESEARCH PLAN**

#### ***Phase 3: Additional Injury Criteria, Seating Positions, and Test Dummies***

*Investigation of Additional Injury Criteria, Seating Positions, and Test Dummies – perform crash tests and other related research over the next year using the IIHS side impact test to assess the safety benefits of adding performance criteria for other body regions, with specific attention to the thoracic and abdominal regions. This research also will assess the potential safety benefits of performance criteria for a rear-seat test dummy, as well as compare the performance of the SID IIs and WorldSID test dummies.*

#### ***Phase 4: Enhanced Structural Interaction in Front-to-Side Crashes***

*Investigation of Performance Criteria for Enhanced Structural Interaction – investigate the opportunities to further enhance structural interaction between vehicles in front-to-side crashes, with a particular emphasis on striking vehicles meeting the front-to-front compatibility performance criteria. This work will include an assessment of the IIHS side impact barrier in light of the front-to-front compatibility performance criteria. Phase 4 research will start within one year, and build upon the results of Phase 3 research.*

## **2.0 FRONT-TO-FRONT CRASHES**

### **2.1 PERFORMANCE CRITERIA & IMPLEMENTATION SCHEDULE**

#### ***Phase 1: Enhancing Geometric Alignment of Front Energy-absorbing Structures***

*Participating manufacturers will begin designing light trucks in accordance with one of the following two geometric alignment alternatives, with the light truck at unloaded vehicle weight (as defined in 49 CFR 571.3)<sup>3</sup>:*

*OPTION 1: The light truck's primary frontal energy-absorbing structure shall overlap at least 50 percent of the Part 581 zone AND at least 50 percent of the light truck's primary frontal energy-absorbing structure shall overlap the Part 581 zone (if the primary frontal energy-absorbing structure of the light truck is greater than 8 inches tall, engagement with the entire Part 581 zone is required), OR,*

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<sup>3</sup> See attachment for the geometric alignment assessment procedure to be followed.

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*OPTION 2: If a light truck does not meet the criteria of Option 1, there must be a secondary energy-absorbing structure, connected to the primary structure, whose lower edge shall be no higher than the bottom of the Part 581 bumper zone. This secondary structure shall be designed to reduce structural over-ride of a passenger car during a frontal crash.*

*If a light truck has crash compatibility devices that deploy in high-severity frontal crashes with another vehicle, all measurements shall be made with these devices in their deployed state.*

*Not later than September 1, 2009, 100 percent of each participating manufacturer's new light truck production intended for sale in the United States will be designed in accordance with either geometric alignment Option 1 or Option 2.*

***Applicability:** All light truck vehicles with GVWRs up to 10,000 pounds, except, low production volume vehicles, vehicles over 8,500 pounds GVWR with functional criteria which preclude them from meeting the performance criteria, (e.g., postal vehicles, military vehicles, service vehicles used by public and private utilities, vehicles specifically designed primarily for off-road use, and incomplete vehicles), and other vehicles that a manufacturer determines cannot meet the performance criteria without severely compromising their practicality or functionality.*

### **2.2 RESEARCH PLAN**

#### ***Phase 2: Force Matching of Front Energy-absorbing Structures***

*Dynamic Test Protocol for Enhanced Structural Interaction – to be assessed over the next year.*

#### ***Phase 3: Stiffness Matching of Front Energy-absorbing Structures***

*Investigation of Front-end Stiffness Performance – investigate tests over the next two years to determine appropriate front-end stiffness characteristics and criteria that would strike an appropriate balance between small vehicle passenger compartment strength and large vehicle energy absorption characteristics.*

### **3.0 INFORMATION DISSEMINATION**

#### **3.1 PRODUCT INFORMATION:**

*Beginning December 4, 2003, and on each September 1<sup>st</sup> thereafter, through September 1, 2009 (i.e., December 4, 2003; September 1, 2004; September 1, 2005; September 4, 2006; September 3, 2007; September 1, 2008; and September 1, 2009), participating manufacturers will publicly disclose at least annually, the vehicle nameplates [models] for the upcoming model year that have been engineered according to the front-to-front and front-to-side performance criteria.*



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### 3.2 CONFIRMATORY DATA:

*Beginning December 4, 2003, and on each September 1<sup>st</sup> thereafter, through September 1, 2009 (i.e., December 4, 2003; September 1, 2004; September 1, 2005; September 5, 2006; September 3, 2007; September 1, 2008; and September 1, 2009), participating manufacturers shall voluntarily provide to NHTSA confirmatory information or engineering analyses demonstrating that vehicles identified under "Product Information" above have been designed in accordance with the front-to-front and front-to-side performance criteria, respectively. The process of confirming that vehicles have been designed in accordance with the performance criteria is consistent with the process used by manufacturers to self-certify compliance with Federal Motor Vehicle Safety Standards.*

### 3.3 IMPLEMENTATION PROGRESS:

*Beginning November 1, 2004, and on each November 1<sup>st</sup> thereafter, through November 1, 2010 (i.e., November 1, 2004; November 1, 2005; November 1, 2006; November 1, 2007; November 3, 2008; November 2, 2009; and November 1, 2010) participating manufacturers will publicly disclose annually the percentages of the manufacturer's total production for the preceding 12-month period ending August 31<sup>st</sup> that were engineered in accordance with the front-to-front and front-to-side performance criteria, respectively.*

## 4.0 SUSTAINABILITY

*Participating manufacturers will transfer these performance criteria to an appropriate internationally recognized voluntary standards organization when appropriate to ensure the sustainability of these criteria.*



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**COMMITMENT FOR CONTINUED PROGRESS BY LEADING AUTOMAKERS**

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**PARTICIPATING VEHICLE MANUFACTURERS**

**BMW GROUP**

**DAIMLERCHRYSLER CORPORATION**

**FORD MOTOR COMPANY**

**GENERAL MOTORS**

**HONDA**

**HYUNDAI MOTOR**

**ISUZU MOTORS**

**KIA MOTORS**

**MAZDA**

**MITSUBISHI MOTORS**

**NISSAN**

**SUBARU**

**SUZUKI**

**TOYOTA**

**VOLKSWAGEN GROUP**

*DECEMBER 2, 2003*

## **ENHANCING VEHICLE-TO-VEHICLE CRASH COMPATIBILITY COMMITMENT FOR CONTINUED PROGRESS BY LEADING AUTOMAKERS**

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### **ATTACHMENT**

#### **FRONT-TO-FRONT CRASHES; PHASE-I MEASUREMENT PROCEDURE**

The conformance to Phase 1, Options 1 and 2, may be evaluated using engineering judgment, engineering drawings with production tolerances, or physical measurements.

The following procedure shall be used to define the upper and lower heights of the Primary Energy Absorbing structure (PEAS).

All measurements will be made with the vehicle on a flat, level horizontal surface and at its unloaded weight (49 CFR Part 571.3). The tires will be inflated to the pressure recommended by the manufacturer of the vehicle and any systems likely to affect the vehicle structure height (such as air suspensions, etc) will be in the cruising configuration for the vehicle traveling at 35 mph on a level horizontal road surface.

If the vehicle has crash compatibility devices that deploy in the event of high severity frontal crashes with another vehicle, all measurements shall be made with these devices in their deployed stage.

The height of the vehicle's PEAS mentioned in **Option 1** shall be measured at the forward-most point where a vertical plane intersects a complete section<sup>4</sup> of the vehicle's PEAS<sup>5</sup>. The heights of the top and of the bottom of the primary structure are determined as the heights of the upper side and of the lower side respectively of the smallest vertical rectangle enclosing the outer surfaces of the cross-section of the PEAS. For this measurement, all components that are not designed for crash energy dissipation will be excluded from the measurement<sup>6</sup>.

The measurement of the height of vehicle's secondary energy absorbing structure mentioned in **Option 2** shall be determined as the height of the horizontal plane that is tangential to the lowest point of the secondary energy absorbing structure.

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<sup>4</sup> Typically, this will be a closed section.

<sup>5</sup> "Primary Energy Absorbing Structure" is defined as structure that manages energy in high severity crashes.

<sup>6</sup> For structures that employ unique configurations, the test report shall include assumptions that influenced determination of PEAS height.

## ENHANCING VEHICLE-TO-VEHICLE CRASH COMPATIBILITY

COMMITMENT FOR CONTINUED PROGRESS BY LEADING AUTOMAKERS

